

Claims

1. A method for providing time information, the method comprises the steps of:
 - sending time information to at least one communications device; and
 - receiving information indicating an error in a received time information from at least one of the at least one communications device, the error in the received time information having been determined in a communications device.
2. The method as defined in claim 1, further comprising the step of estimating a transfer delay for transferring the time information to a communications device for at least one transfer medium based on the information indicating the error in the received time information from at least one of the at least one communications device.
3. The method as defined in claim 2, wherein the step of estimating the transfer delay comprises a step for estimating transfer delays for a plurality of transfer media.
4. The method as defined in claim 3, further comprising the step of selecting a transfer medium for sending the time information from the plurality of transfer media.
5. The method as defined in claim 4, wherein in the step of selecting the transfer medium is selected based on at least estimated transfer delays.
6. The method as defined in claim 2, further comprising the step of compensating for an estimated transfer delay.

7. The method as defined in claim 6, wherein the step of compensating comprises the step of taking into account the estimated transfer delay before sending the time information.
8. The method as defined in claim 6, comprising the step of providing to the at least one communications device information indicating the estimated transfer delay for compensation.
9. The method as defined in claim 2, further comprising the step of estimating the reliability of the time information based on an estimated transfer delay.
10. The method as defined in claim 9, comprising the step of sending information indicating an estimated reliability of the time information to at least one communications device.
11. The method as defined in claim 1, wherein the time information comprises a reference time for positioning the communications device.
12. The method as defined in claim 1, wherein the time information is included in location assistance information relating to a positioning system.
13. The method as defined in claim 1, wherein the time information is included in a location request message.
14. The method as defined in claim 1, wherein the information indicating the error in the received time information is included in a location response message.
15. The method as defined in claim 8, further comprising the step of monitoring network performance based on estimated transfer delays.

16. A communications system, configured to:
send time information to at least one communications device; and
receive information indicating an error in a received time information from at least one of the at least one communications device, the error in the received time information having been determined in a communications device.

17. The communications system as defined in claim 16, further configured to estimate a transfer delay for transferring the time information based on the information indicating the error in the received time information.

18. A network element for communications system, the network element configured to:

send time information to at least one communications device; and
receive information indicating an error in a received time information from at least one of the at least one communications device, the error in the received time information having been determined in a communications device.

19. The network element as defined in claim 18, comprising a location server.

20. A communications device, configured to:
receive a first time information from a communications system;
determine a second time information with respect to an external time frame;
determine an error in the first time information based on at least the second time information; and
send information indicating the error in the first time information to the communications system.

21. The communications device as defined in claim 20, comprising a receiver for positioning system signals.

22. The communications device as defined in claim 21, wherein the receiver for positioning system signals is a Global Positioning System receiver and the first time information is a reference time for positioning.

23. A method for operating a communications device, the method comprising the steps of:

receiving a first time information from a communications system;

determining a second time information with respect to an external time frame;

determining an error in the first time information based on at least the second time information; and

sending information indicating the error in the first time information to the communications system.

24. The method as defined in claim 23, wherein the step of receiving a first time information is carried out at a first time instance and the step of determining a second time information is carried out at a second time instance.

25. The method as defined in claim 24, further comprising the step of determining a time period between the first time instance and the second time instance.

26. The method as defined in claim 25, wherein the step of determining an error in the first time information further comprises the step of determining the error based on the first time information, the second time information and the time period.

27. The method as defined in claim 23, wherein the external time frame is a positioning system time frame.

28. The method as defined in claims 23, wherein the first time information is included in a location request message.

29. The method as defined in claim 23, wherein the information indicating the error is included in a location response message.

30. The method as defined in claims 23, wherein the first time information is included in location assistance information relating to a positioning system.

31. A communications device, comprising:

means for receiving a first time information from a communications system;

means for determining a second time information with respect to an external time frame;

means for determining an error in the first time information based on at least the second time information; and

means for sending information indicating the error in the first time information to the communications system.

32. A network element for a communications system, the network element comprising:

means for sending time information to at least one communications device; and

means for receiving information indicating an error in a received time information from at least one of the at least one communications device, the error in the received time information having been determined in a communications device.

33. A communications system, comprising:

means for sending time information to at least one communications device; and

means for receiving information indicating an error in a received time information from at least one of the at least one communications device, the error in the received time information having been determined in a communications device.